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**\*19 "INNOVATION MARKETS" AND THE 1995 ANTITRUST GUIDELINES FOR THE LICENSING**

**AND ACQUISITION OF INTELLECTUAL PROPERTY**

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**\*21 I. A BRIEF HISTORICAL PERSPECTIVE**

The Final Guidelines for the Licensing of Intellectual Property were issued on April 6, 1995 and serve as enforcement guidelines for both the Federal Trade Commission ("FTC") and the Department of Justice ("the Department"). They replace the Department's Antitrust Enforcement Guidelines for International Operations and serve to update both Agencies' current enforcement policies.

There is no question that the Guidelines reflect a change in position (to a certain extent) regarding the Department's enforcement policies concerning the application of the antitrust laws to intellectual property right based transactions. From the anti-licensing perspective of the "Nine No's No's" of the 1970's to the "liberalized" view of the 1988 International Guidelines that some patent licenses may be pro-competitive, the recent history of the relationship between US antitrust laws and intellectual property rights has been one of conflict. The 1995 Guidelines at least purport to be less hostile to the commercial exploitation of certain intellectual rights. Their reliance on a "new" measure of market impact -- the "innovation" market -- however, may presage an unfortunate return to the harsher view of the antitrust-intellectual property nexus, \*22 in direct contravention of the supposedly supportive spirit of the 1995 Guidelines.

**II. SOME PERTINENT TERMINOLOGY**

The Final Guidelines issued on April 6, 1995, use the following terms, which have been utilized in these materials as well for the sake of consistency:

"Agencies" refers to both the Department of Justice and the Federal Trade Commission, who jointly issued the Guidelines.

"Intellectual property" refers to "patents, copyrights, trade secrets and know how" which are the items of intellectual property governed by the Guidelines.

"Innovation Market" refers to a market impact measure that consists of "the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development."

**III. GOALS OF THE GUIDELINES**

The stated purpose of the 1995 Guidelines is "to assist those who need to predict whether the Agencies will challenge a practice as anti-competitive." Because the Guidelines focus on the enforcement policies of the Department of Justice and the Federal Trade Commission, the development of a new "innovation" market measure of competitive impact has a direct effect on those who must advise their clients as to \*23 the potential antitrust liability of a particular intellectual property licensing transaction. The reliance on this new market test raises serious doubts regarding whether in fact the 1995 Guidelines provide a workable balance between the Agencies' concern with flexibility to allow them to challenge unanticipated anti-competitive transactions with a practitioner's need for predictability in determining what practices can be considered "safe" or relatively low risk from an antitrust enforcement stand point.

#### IV. THE RESTRICTIVE REACH OF THE GUIDELINES

The 1995 Guidelines do not cover licensing transactions involving trademarks. Although in a footnote, the Agencies have indicated that the "same general antitrust principles" apply to trademarks as to "other forms of intellectual property," they have excluded any express treatment of the issue on the basis that the Guidelines are designed to address "technology transfer and innovation related issues" as opposed to the "product differentiation issues" that "typically arise with respect to trademarks." While people can quibble about the desirability of having guidelines that address all forms of intellectual property, there are enough problems presented by the 1995 Guidelines without adding the separate issues that might arise from including trademarks within their scope.

In addition to excluding trademarks, the 1995 Guidelines focus solely on the \*24 licensing of intellectual property. Any outright sale of covered intellectual property rights are intended to be treated under currently existing merger analysis.

#### V. THE POSITIVE FEATURES OF THE GUIDELINES

There is no question that having a separate set of guidelines devoted to intellectual property licensing issues is an idea whose time was long overdue. Members of the Department of Justice and the Federal Trade Commission have constantly reassured the public that they recognize that the U.S. edge in the development and exploitation of technological advances is something to be protected and nurtured, not scrutinized with suspicious eyes. The attempt by the 1995 Guidelines to foster such development and exploitation through their purported attempt to increase enforcement predictability is a worthy goal and one that should be heartily applauded. Furthermore, the issuance of separate enforcement guidelines for intellectual property licensing has at least focused attention on the unique issues posed by intellectual property based transactions. It has begun a dialogue between the Department of Justice and intellectual property owners and practitioners that in itself should serve a useful purpose in sensitizing the parties to the issues involved.

The 1995 Guidelines properly recognize that both antitrust and intellectual property laws "share the common purpose of promoting innovation and enhancing \*25 consumer welfare." The Agencies have adopted as one of their "general principles" the proper view that, far from being anti-competitive, intellectual property licensing is "generally pro-competitive" and "allows firms to combine complementary factors of production." The Agencies further acknowledge that the mere presence of an intellectual property right does not create market power -- a major step forward as far as enforcement

policy is concerned. Equally important is the recognition that even if market power is conveyed by an intellectual property right, such market power alone does not violate the antitrust laws so long as it is solely "a consequence of superior product, business acumen or historic accident." Despite these positive developments, however, the step forward in acknowledging the pro-competitive potential of intellectual property licenses may be undone by the Guidelines' introduction of the concept of "innovation markets" in determining adverse market impact of a proposed licensing arrangement.

## VI. INNOVATION MARKETS

According to Article 3.2.3 of the 1995 Guidelines if the Department or the FTC determines that a licensing arrangement "may adversely affect competition to develop new or improved goods or processes," the Agency "will analyze" the impact of the transaction "either as a separate competitive effect in relevant goods or technology \*26 markets, or as a competitive effect in a separate innovation market." According to the Guidelines, an innovation market "consists of the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development." The Guidelines define "close substitutes" as "research and development efforts, technologies, and goods that significantly constrain the exercise of market power with respect to the relevant research and development." An innovation market is only supposed to be used when "capabilities to engage in the relevant research and development can be associated with specialized assets or characteristics of specific firms." Although on its face, this language might appear to describe a narrow range of cases in which innovation market analysis must be undertaken, in point of fact, the Guidelines are not so limiting.

## VII. THE DEFINITIONAL PROBLEMS OF "INNOVATION"

The 1995 Guidelines provide no guidance as to what qualifies as "specialized assets" that must be associated with a specific firm before the innovation market analysis is to occur. How are these assets to be determined? Through some sort of analysis of industry research requirements? How does anyone determine what those requirements might be?

Research is not a marketable product. A member of the general public can't \*27 necessarily go down to the corner store and buy himself/herself research. Companies undertake innovative research for a number of reasons: to reduce costs, to enhance safety, perhaps to respond to consumer demands or perceived market needs. These purposes are not necessarily responsive to changes in research costs. Thus, the underlying hypothesis that there is such a thing as an innovation market is itself flawed.

The 1995 Guidelines do not explain how one is to determine what constitutes a "specialized asset" the presence of which might trigger analysis of an innovation market. The examples given in the Guidelines refer to research for high tensile materials for jet turbines and for biodegradable plastic. Neither of these examples seems to call for some particular specialization in research assets that is any different from research for any other product or industry. Are research personnel a sufficient "specialized asset"? Is lab equipment, or the capacity to engage in specialized research simply because a company has the personnel, the equipment or the interest in the area?

## VIII. THE PRACTICAL PROBLEMS OF ANALYSIS

Even if there such a thing as an innovation market, how can the scope of that market be determined

other than through rank speculation and guesswork? Most companies undertake research under the strictest security. Although some companies may have an idea through industry rumors that some particular type of research is being \*28 undertaken by a competitor, competitors don't generally have access to the type of in-depth information they would need to have in order to determine whether a proposed licensing scheme impacts adversely on an "innovation market." Furthermore, if there is a "market" for research, there is one critical non-commercial factor that must be considered -- universities and other private, non-commercial labs that may also be engaged in related research. How many commercial clients actually have access to this type of information in order to permit them and/or their counsel to make an informed analysis of an innovation market.

## IX. SOME FINAL THOUGHTS

The Guidelines limit the use of an innovation market to those circumstances where the assets can be "specialized." They further state that if the Agency cannot "reasonably identify the firms with the required capability and incentive" it will not attempt to define an innovation market. Despite this apparently limited applicability, examples provided through-out the Guidelines specifically refer to market share in an innovation market as part of the analysis. Furthermore, the Guidelines specifically provide that the Agencies may use an innovation market analysis "as an aid in analyzing competitive effects in technology or goods markets." Thus, there appear to be few situations where parties are not going to have to at least initially consider what adverse \*29 effect, if any, their proposed license will have on this amorphous "innovation market."

Even if the innovation market concept is only applied in certain narrow situations, there is still the problem of determining what the "innovation market" is and, more particularly, what shares will be affected by the license under scrutiny. The 1995 Guidelines suggests that the Agencies will base their market share determinations on "shares of identifiable assets or characteristics upon which innovation depends, on shares of research and development expenditures or on shares of a related product." In addition to the problem of appropriately identifying and quantifying "identifiable assets," relying on research expenditures to determine market share is of doubtful reliability. Is the party who spends the most money, necessarily the one who has the largest share of the research market? What happened to the garage inventor who has limited resources and yet develops the breakthrough technology? If someone had restricted Bill Gates from developing Microsoft, can anyone seriously contend that the research market in the area of computer software would not have been seriously impacted? These examples underscore one of the most difficult features of research to quantify -- human intelligence and capability. Isn't the ability to engage in research and innovation due in large part to the capabilities of the people who are charged with undertaking that research? How do you compare such assets in a realistic and meaningful fashion?

\*30 Finally, in analyzing a research market, when are foreign resources considered? The Guidelines are silent.

\*31 See Intellectual Property Antitrust, Volume 1 (Chapter 13 - Page 539) for "Antitrust Guidelines for the Licensing of Intellectual Property" issued by the U.S. Department of Justice and the Federal Trade Commission - April 6, 1995

\*33 [APPENDIX]

UNITED STATES DISTRICT COURT DISTRICT OF DELAWARE

UNITED STATES OF AMERICA,  
Plaintiff,

v.

GENERAL MOTORS CORP.,  
ZF FRIEDRICHSHAFEN, AG,  
ZF AG HOLDING, INC.,  
ZF ACQUISITION CORP., and  
ZF INDUSTRIES, INC.,  
Defendants.

Civil Action No. 93-530

Filed: November 16, 1993

COMPLAINT

The United States of America, acting under the direction of the Attorney General of the United States, brings this civil action to obtain equitable and other relief against the defendants named herein and alleges as follows:

1. The United States brings this antitrust case to block the proposed combination of the two largest manufacturers of medium and heavy automatic transmissions in the world, ZF Friedrichshafen, AG and the Allison Transmission Division of General Motors Corp. ZF and Allison are each other's main competitors in sales of automatic transmissions for medium and heavy trucks, buses, and other commercial and military vehicles. They also are the two most important companies in the world that compete to design, develop, and produce such automatic transmissions.

**\*34** 2. If ZF acquires Allison, it will be the only supplier of automatic transmissions in the United States for refuse trucks and will dominate the market for transit bus transmissions. It will also produce about 89 percent of all medium and heavy automatic transmissions worldwide and thus dominate the market for technological innovation in such automatic transmissions. Unless prevented, this combination is likely to substantially diminish competition and result in higher prices, poorer services, and the loss of better products and new innovative products for American consumers.

I. JURISDICTION AND VENUE

3. This action is instituted under Section 15 of the Clayton Act, as amended, 15 U.S.C. § 25, to prevent and restrain the violation by defendants of Section 7 of the Clayton Act, as amended, 15 U.S.C. § 18. This Court has jurisdiction over the subject matter and the persons of the defendants pursuant to Section 12 of the Clayton Act, 15 U.S.C. § 22, and 28 U.S.C. §§ 1331 and 1337.

4. General Motors Corp. ("GM"), a Delaware corporation, is found and transacts business in the District of Delaware. Venue is proper in the District of Delaware under 15 U.S.C. § 22 and 28 U.S.C. § 1391(c).

5. ZF Friedrichshafen, AG ("ZF") is a company organized under the laws of Germany. ZF transacts business in the United States and is found in the District of Delaware through its wholly owned direct or indirect subsidiaries, ZF Industries, Inc. ("ZFI"); ZF AG Holding, Inc. ("ZFH"); and ZF Acquisition Corp. ("ZFA"). Venue is proper in the District of Delaware **\*35** under 15 U.S.C. § 22 and 28

U.S.C. § 1391(d).

6. ZFI, ZFH, and ZFA are Delaware corporations. As to each of these corporations, venue is proper in the District of Delaware under 15 U.S.C. § 22 and 18 U.S.C. § 1391(c).

## II. THE DEFENDANTS

7. GM has proposed to sell to ZF substantially all the assets of its unincorporated Allison Transmission Division ("Allison"). GM is engaged in interstate commerce and in activities substantially affecting interstate commerce.

8. ZF is a company organized and existing under the laws of Germany, with its principal offices in Friedrichshafen, Germany. Through its direct and indirect subsidiaries in the United States, ZF is engaged in interstate commerce and in activities substantially affecting interstate commerce.

9. Based in Lincolnshire, Illinois, ZFI oversees ZF's automotive transmission and other businesses in North America. ZFI is engaged in interstate commerce and in activities substantially affecting interstate commerce.

10. ZFH is a wholly owned subsidiary of ZF and is the holding company for all the capital stock of ZFA and ZFI. ZFA is a shell corporation created to facilitate ZF's receipt of the Allison assets at closing.

## III. TRADE AND COMMERCE

11. Motor vehicles require transmissions to transfer power from the engine through a driveline to the wheels.

**\*36** 12. The two most commonly-used types of transmissions are: automatics, which use a torque converter to change gears automatically in response to changes in engine speed; and manuals, which require drivers to change gears through the use of a mechanical clutch and gear selector. The only other type of transmission is the automated manual, which has limited commercial acceptance and which uses electro-mechanical controls to change the gears of what otherwise is a manual transmission. Nearly all transmissions sold in the United States are either automatic or manual.

13. Automatic and manual transmissions have different characteristics. A customer's evaluation of the importance of these characteristics depends upon the intended use made of the transmission. For example, for trucks or buses that operate under heavy stop-and-go conditions, using automatics rather than manuals or automated manuals can yield significant savings in maintenance costs, driver training, and operational efficiency. Automatic transmissions are also superior to manuals and automated manuals in terms of ride characteristics and safety (by eliminating the need to shift gears, they allow drivers to better concentrate on traffic or passenger conditions). These performance qualities make automatics the transmission of choice in transit and school buses, fire trucks, and other vehicles where ride comfort or safety factors are important.

**\*37** 14. Automatic transmissions vary substantially according to the requirements of the vehicle involved. There are different sizes of automatic transmissions depending on the size of the powertrain. And even transmissions of the same size vary in gear ratios and features that depend on the vehicle's use. Thus, the choice among types of automatic transmissions will differ depending on the use made

of the vehicle.

15. Automatic transmission producers design and build transmissions to fit the individual performance and engineering requirements of their customers and their customers' uses. Thus, for example, an automatic transmission for a transit bus differs from and is not interchangeable with one for a heavy refuse route truck because the varying operational requirements of these vehicles need different gearing and features.

16. Because of the performance advantages of automatic transmissions, commercial and military customers choose exclusively automatic transmissions for several uses, despite the fact that automatic transmissions are typically twice as expensive as manuals. In those uses, customers will not substitute a manual transmission for an automatic transmission, even if the price of automatic transmissions were to increase markedly.

17. Allison and ZF both produce and sell medium and heavy automatic transmissions designed specifically and exclusively for various types of uses. Both companies forecast and monitor \*38 sales for transmissions separately for specific uses. Allison and ZF set prices and warranties separately for each specific use of transmission they produce. They also track and maintain records of sales and repairs for those specific uses.

18. Allison and ZF sell the majority of their transmissions on a bid basis to original equipment manufacturers which specify the end users' vehicle function, performance, and component requirements. Allison and ZF engineers work with the manufacturers to ensure that the end users' specifications are met. Typically, Allison and ZF know the identity of the end user for each transmission sold.

#### Automatic Transmissions for Transit Buses

19. A transit bus weighs over 33,000 pounds and is used for local urban or suburban transportation.

20. All transit buses built for use in the United States are equipped with automatic transmissions for a number of reasons. For example, automatic transmissions require less driver training, provide a smoother and more comfortable ride, and enhance safety by allowing the driver to concentrate on other aspects of operating the bus.

21. Transit bus transmissions differ in form, fit, and function from those used in other vehicles. Because of the advantages of automatic transmissions for transit buses, and the uniqueness of the transit bus transmissions, transit bus \*39 manufacturers and purchasers would not turn to any substitute (other types of automatic transmissions, manuals or automatic manuals) in the face of a small but significant and non-transitory price increase.

22. Allison produces and sells automatic transmission models meant specifically and exclusively for transit buses. It also forecasts and monitors sales of transit bus transmissions. Allison sets its prices and warranties separately for each of its applications, including its transit bus customers. ZF, likewise, produces, sells, monitors, and prices its transit transmissions differently according to the use of the vehicle.

23. The manufacture and sale of automatic transmissions for transit buses is a line of commerce and a relevant product market, and the United States is a relevant geographic market, within the meaning of

Section 7 of the Clayton Act.

24. In 1992, approximately 4,000 automatic transmissions valued at about \$50 million were installed in transit buses produced and sold throughout the United States.

25. Only three companies manufacture automatic transmissions for transit buses used in the United States: Allison, ZF, and J.M. Voith. ZF, which entered the market in 1985, has been particularly aggressive competing against Allison in price -- by offering competitive assistance discounts and \*40 extended warranties -- and in service for sales in this market.

26. If ZF acquires Allison, the market will suffer the loss of an innovative competitor. The proposed acquisition will leave only two competitors in the market, resulting in higher prices for transit bus transmission customers. It also will give the combined ZF-Allison control of approximately 78 percent of all sales in that market, a significant increase in concentration in what is already a highly concentrated market. Using a measure of market concentration called the "HHI" (defined and explained in Appendix A), the transaction will increase the HHI by about 1000 points to a post-acquisition level of about 6500 points.

27. A new competitor is not likely to enter the market for automatic transmissions for transit buses after the acquisition in a manner sufficient to deter or counteract a small but significant and non-transitory price increase because substantial up-front investment in plant, machinery, research, marketing, sales, and service is required before any firm could enter this market. Moreover, most customers will only purchase from manufacturers with an established reputation for reliability, performance, and customer support. Establishment of such a reputation takes years and requires a significant investment of resources.

**\*41 Automatic Transmissions for Heavy Refuse Route Trucks**

28. A heavy refuse route truck weighs over 33,000 pounds and is used to collect residential and commercial refuse and deliver it to disposal sites. It typically is used in situations that involve numerous and frequent starts and stops.

29. Most heavy refuse route trucks use automatic transmissions because they permit more efficient operation than other kinds of transmissions. Automatic transmissions for heavy refuse route trucks are different in form, fit, and function from those used in other vehicles. Purchasers of such transmissions will not turn to other transmissions as substitutes in the face of a small but significant and non-transitory price increase.

30. Allison and ZF produce and sell transmissions meant specifically and exclusively for heavy refuse route trucks. Both firms forecast and monitor sales of heavy duty refuse transmissions, and set prices and warranties separately for these applications.

31. Accordingly, the manufacture and sale of automatic transmissions for heavy refuse route trucks is a line of commerce and a relevant product market, and the United States is a relevant geographic market, within the meaning of Section 7 of the Clayton Act.

\*42 32. In 1992, approximately 3,000 automatic transmissions valued at over \$30 million were installed in heavy refuse route trucks produced and sold throughout the United States.



33. ZF and Allison are the only companies that produce automatic transmissions for sale in the United States for heavy refuse route trucks. They compete in price -- by offering competitive assistance discounts and extended warranties -- and service for this business. ZF's proposed acquisition of Allison will combine the only competitors in the market, will create a monopoly, and will result in higher prices and less service to their customers, which include public service refuse authorities.

34. No competitor will enter the market for automatic transmissions for heavy refuse route trucks in a manner that will deter or counteract a small but significant and non-transitory price increase.

Technological Innovation in The Design, Development, and Production Of Medium  
and Heavy Automatic Transmissions For Commercial and Military Vehicles

35. Allison and ZF are direct horizontal competitors in technological innovation for the design, development, and production of medium and heavy automatic transmissions for commercial and military vehicles. This competition has resulted in improved products, new products, lower costs of manufacture, and lower prices to consumers.

\*43 36. Until the mid-1980's, Allison was the sole supplier of medium and heavy automatic transmissions for commercial and military vehicles in the United States. ZF's 1985 introduction of the Ecomat in the United States brought a technologically superior product to the market, spurring price competition as well as competition in innovation. Thereafter, Allison invested substantial sums to design, develop, and produce improved transmission components, such as electronic controls and speed retarders. Allison also invested about \$500 million to develop a new line of substantially improved transmissions, which Allison named the "World Transmission."

37. ZF has recognized that it must make a strong competitive response to the World Transmission. In the words of ZFI's Vice President of Engineering: "There are only two ways, to counter the attack of Ally [Allison] against the European market and the rest of the world: a) Purchase Ally and b) Rethink and reschedule the ECOMAT strategy in respect to cost and product line quickly and massively."

38. The proposed acquisition will eliminate that response and all future competition in innovation between these two major manufacturers of automatic transmissions.

39. This loss of competition will occur most directly in a line of commerce defined as technological innovation in the design, development, and production of medium and heavy automatic transmissions for commercial and military vehicles \*44 (the "Innovation Market"). Although the geographic market is the world, the loss of competition in the Innovation Market resulting from the acquisition will affect the prices and performance of all medium and heavy automatic transmissions sold for commercial and military vehicles in the United States.

40. Technological innovation in the design, development, and production of manual transmissions is not a substitute for such innovation in automatic transmissions. Moreover, future innovations in manual transmissions will not assure continued vigorous competition in the Innovation Market because there is a distinct, identifiable, and substantial group of customers who purchase automatic transmissions and would not switch to manual transmissions. This group includes customers who purchase transmissions for transit buses, inter-city buses, postal trucks, refuse trucks, wheeled military vehicles, school buses, fire trucks, yard spotters, motor homes, and other uses.

41. To compete in the Innovation Market, a firm needs, among other things, a full scale automatic transmission production facility. Such a facility, with a substantial history of production, is necessary to generate production experience and to allow development of product and process ideas. Moreover, substantial on-going experience with automatic transmission customers and their requirements is necessary to design and develop new and improved transmissions. For these reasons, only firms with full scale manufacturing facilities and \*45 distribution experience in automatic transmission applications are capable of competing in the Innovation Market in the foreseeable future.

42. Because of the importance of production and customer experience in the innovation process, market shares in the Innovation Market can be approximated by the number of units produced worldwide by each manufacturer of medium and heavy automatic transmissions for commercial and military vehicles. Using this measure and transmission data generated by Allison and ZF, Allison has over 75 percent of the Innovation Market and ZF has approximately 14 percent. The transaction will result in a dominant firm with over 89 percent of the market. Applying the HHI analysis, concentration will increase by over 2000 points and the post-acquisition concentration will be roughly 8000 points.

43. Under any measure, the proposed transaction will reduce the number of competitors in the Innovation Market from three to two, reducing both the actual competition for innovation and the incentive of the remaining firms to compete vigorously for future innovation. The only other competitor, J.M. Voith, is a less effective competitor than either Allison or ZF because its focus is only on bus transmissions.

44. Reduced competition in the Innovation Market will harm purchasers of automatic transmissions. These purchasers will be denied the fruits of competition in the forms of better products, new innovative products, improved manufacturing processes, and lower prices.

\*46 45. There is no likelihood that any firm will enter the Innovation Market in the foreseeable future in a manner sufficient to restore significant competition that would be lost if the proposed transaction were to be consummated.

#### IV. VIOLATION ALLEGED

46. Pursuant to an agreement dated July 2, 1992, ZF proposes to acquire substantially all the assets of Allison in a transaction valued at approximately \$525 million. That transaction will give ZF control of Allison's transmission business.

47. The effect of this acquisition may be substantially to lessen competition in interstate trade and commerce in violation of Section 7 of the Clayton Act in the following ways, among others:

(a) Actual and potential competition between Allison and ZF in the market for the manufacture and sale of automatic transmissions for transit buses in the United States will be eliminated;

(b) Competition generally in the market for the manufacture and sale of automatic transmissions for transit buses in the United States may be substantially lessened;

(c) Actual and potential competition between Allison and ZF in the market for the manufacture and sale of automatic transmissions for heavy refuse route trucks in the United States will be eliminated;

**\*47** (d) Competition generally in the market for the manufacture and sale of automatic transmissions for heavy refuse route trucks in the United States may be substantially lessened;

(e) Actual and potential competition between Allison and ZF worldwide in the market for technological innovation in the design, development, and production of medium and heavy automatic transmissions for commercial and military vehicles will be eliminated; and

(f) Competition generally in the market for worldwide technological innovation in the design, development, and production of medium and heavy automatic transmissions for commercial and military vehicles may be substantially lessened.

#### V. REQUEST FOR RELIEF

WHEREFORE, plaintiff prays:

1. That ZF's acquisition of Allison be adjudged a violation of Section 7 of the Clayton Act.
  2. That a permanent injunction be issued preventing and restraining the defendants and all persons acting on their behalf from consummating the purchase agreement alleged in paragraph 46 or from going forward with any other plan or agreement by which ZF would merge with or acquire Allison, its capital stock, or any of its assets.
  3. That the United States have such further relief as this Court may deem proper.
- \*48** 4. That the United States recover the costs of this action.

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**\*49 APPENDIX A DEFINITION OF HHI**

"HHI" means the Herfindahl-Hirschman Index, a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers. For example, for a market consisting of four firms with shares of thirty, thirty, twenty, and twenty percent, the HHI is 2600 ( $30^2 + 30^2 + 20^2 + 20^2 = 2600$ ). The HHI takes into account the relative size and distribution of the firms in a market and approaches zero when a market consists of a large number of firms of relatively equal size. The HHI increases both as the number of firms in the market decreases and as the disparity in size between those firms increases.

Markets in which the HHI is between 1000 and 1800 are considered to be moderately concentrated and those in which the HHI is in excess of 1800 points are considered to be concentrated. Transactions that increase the HHI by more than 100 points in moderately concentrated and concentrated markets presumptively raise antitrust concerns under the Department of Justice and Federal Trade Commission 1992 Horizontal Merger Guidelines.

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